



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,340	12/04/2001	Masanobu Nishimine	0171-0801P-SP	9766
2292	7590	11/16/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			NGUYEN, NGOC YEN M	
			ART UNIT	PAPER NUMBER
			1754	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/000,340

Applicant(s)

NISHIMINE ET AL.

Examiner

Ngoc-Yen M. Nguyen

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 1, 2004 has been entered.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants are requested to point out support, in the instant specification by page and line numbers, for the limitation "the amount of said flammable gas fed is $\frac{1}{2}$ to 3 mol per mol of said organohalosilane... 1 to 6 times the stoichiometric amount in scheme (I)" as required in the instant claim 1. It is noted on page 4 of the specification, lines 5-9, when the amount of the flammable gas fed is $\frac{1}{2}$ to 9 mol per mol of the organosilane,

Art Unit: 1754

then the amount of water vapor resulting from combustion of the flammable gas is 1 to 6 times the stoichiometric amount in scheme (I). It is also noted that the amount of flammable gas fed is such that the amount of water vapor resulting from combustion of the flammable gas is 1 to 6 times the stoichiometric amount in reaction scheme (I) (note page 3, lines 2-7). Thus, the amount of water formed is directly proportional to the amount of flammable gas fed and when the range for the amount of flammable gas fed is narrowed to " $\frac{1}{2}$ to 3", from " $\frac{1}{2}$ to 9", there would be no sufficient support in the instant specification for the range of "1 to 6 times the stoichiometric amount in scheme (I)" for the water vapor resulting from combustion of said flammable gas.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohr '560, optionally further in view of Nishimine et al (5,855,860).

Rohr '560 discloses a method for making fumed silica having a surface area in the range of 75-500 m²/g, which comprises feeding into a combustion chamber, quench air and a gaseous combustible mixture, where the gaseous combustible mixture comprises a mixture of a silicon compound selected from the group consisting of a

silane, organosilane, and a mixtures thereof, and a mixtures of elements selected from the group consisting of:

a) oxygen and hydrogen, and

b) oxygen, hydrogen and nitrogen, and there is present in the gaseous combustible mixture from about 0.05 to about 2.5 mole% of the silicon compound based on the total moles in the gaseous combustible mixture and sufficient oxygen in the gaseous combustible mixture to produce a flame in the combustion chamber having calculated adiabatic flame temperature in the range of about 1400-2000°C combusting said gaseous combustible mixture at an adiabatic temperature of about 1400-2000°C to produce said fumed silica, and recovered said fumed silica (note claim 1).

Rohr '560 teaches that the fumed silica produced can be used in reinforcing heat curable silicone rubber (note column 3, lines 20-22).

Rohr '560 discloses that preferably, a silicon compound, such as $(\text{CH}_3)_3\text{SiCl}_3$ can be used or a mixture of $(\text{CH}_3)_3\text{SiCl}_3$ and SiHCl_3 . In instances where $(\text{CH}_3)_3\text{SiCl}_3$ is burned, a mixture can be used having 5 to 30 mole % hydrogen and 0.05 to 2.5 mole% $(\text{CH}_3)_3\text{SiCl}_3$ (note column 3, lines 7-12). The ratio of hydrogen to organosilane in Rohr '560 ranges from $(5 / 2.5 =) 2$ to $(30 / 0.05 =) 600$. This range overlaps the claimed range of " $\frac{1}{2}$ to 3". The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549. It also would have been obvious to one having ordinary skill in the art at

the time the invention was made to choose the instantly claimed ranges through process optimization in order to obtain a fumed silica which is suitable for being used as reinforcing material for silicone, since it has been held that there the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215.

Since the ratio of hydrogen to the methyltrichlorosilane in Rohr '560 overlaps the claimed range, the amount of water vapor resulting from the combustion of hydrogen in Rohr '560 would also overlap the claimed range because the amount of water formed is directly proportion to the amount of hydrogen used.

Rohr '560 further discloses an annular guard flame was maintained by feeding hydrogen in a concentric ring around the inner burner tube. Quench air was introduced approximately 20 cm upstream of the burner tip (note column 3, lines 38-42). More particularly, as shown in the Figure, a burner 10 has a conduit 11 for introducing a mixture of a silicon compound, a fuel and air; a duct 12 for the fuel and a duct 13 for quench air (note column 2, lines 47-51). The use of additional concentric ring(s) or tube(s) would have been obvious to one of ordinary skill in the art to maintain the desired condition of the flame for the process of producing fumed silica.

Optionally, Nishimine '860 can be applied to teach that in a process of producing silica by flame hydrolysis of an organosilane, well-known burners may be used for burning the reactants, for examples, simple triple or quadruple tube burners may be used. The preferable burner is a quadruple tube burner (note column 3, lines 45-60).

The difference is Rohr '560 does not specifically disclose the linear velocity of the gas mixture in the center tube.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to optimize such velocity in the process of Rohr '560 through routine experimentation to obtain the desired fumed silica product. It should be noted that Rohr '560, fumed silica with high surface area and low standard deviation is desired just as in the claimed invention.

Applicant's arguments filed November 1, 2004 have been fully considered but they are not persuasive.

Applicants argue that Rohr '560 fails to disclose or suggest the step of feeding $\frac{1}{2}$ to 3 moles of hydrogen per mole of organosilane as claimed in Applicants' claims.

It should be noted that the ranges mentioned in Applicants' argument appear to be the preferred ranges. The broader ranges are disclosed by Rohr '560 (note the above rejection) which fairly suggest an overlapping range for the ratio of hydrogen to the organosilane.

Applicants argue that Rohr '560 fails to recognize the advantages associated with the present invention with regard to advantageously ensuring transparency properties of silicone moldings.

It should be noted that the fumed silica of Rohr '560 is suitable to be used as reinforcing material for silicone. Rohr '560 also teaches that the silica can have surface area (75-500 m²/g, note claim 1) and narrow particle size distribution (note Sample A,

Table I), thus, it would have been well within the skill of the artisan to optimize the surface area, particle size distribution for the silica product of Rohr '560 through routine process optimization in order to obtain a product suitable for being used as reinforcing material for silicone.

Applicants argue that Nishimine '860 fails to make up for the deficiencies of Rohr '560.

Nishimine '860 is only applied to teach that quadruple tube burner can be used instead of triple tube burner of Rohr '560.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.

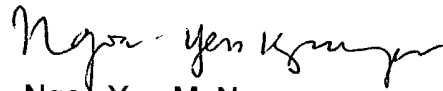
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stan Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Application/Control Number: 10/000,340

Page 8

Art Unit: 1754

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.



Ngoc-Yen M. Nguyen
Primary Examiner
Art Unit 1754

nmn

November 15, 2004